A NEW SPECIES OF MITE, PARANEONYSSUS ICTERIDIUS, FROM THE NASAL CAVITIES OF BLACKBIRDS

(Acarina: Rhinonyssidae)

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Mesostigmatid nasal mites of birds have been known since the last century. Until recently, however, little was known of the incidence and geographical distribution of what is now recognized to be a family composed of numerous genera and many species of mites living in the avian respiratory tract. The reason for this lies in the cryptic habitat of these blood sucking parasites. Ordinary collecting techniques do not reveal their presence. Only when the nares are opened or flushed out are the mites exposed.

The new species of *Paraneonyssus* described here is one found to be of very common occurrence on several icterid birds in California and Texas.

PARANEONYSSUS Castro 1948:274

Small, elongated nasal mites with two large dorsal shields and short peritremes. Stigmata dorsal and over coxa III. Sternal, epigynial and anal plates present. Sternal plate longer than wide, with two pairs of pores. The sternal setae present but not always on the plate. Epigynial plate rounded posteriorly and bearing a pair of setae. Anal plate generally oval and probably always with three setae and a cribrum. Movable segments of the palp longer than the fused coxae. Deutosternal teeth present; tined palpal seta present. Chelicerae slender, long, not attenuated or if so, only the apical one-half or less is involved. *Chelae very small, less than one-tenth the total length of the chelicerae.*

De Castro (1948) proposed the name *Paraneonyssus* as a subgenus of *Neonyssus* for those nasal mites with two large dorsal plates in which the posterior plate is large but narrower than the anterior. In 1949 Pereira and de Castro revised the classification of the Rhinonyssidae, and placed considerably more emphasis on the chelicerae. This resulted in a more natural arrangement and it became apparent that mites of the *Paraneonyssus* complex are much more closely related to *Ptilonyssus* than to *Neonyssus*. *Paraneonyssus* was accordingly made a subgenus of *Ptilonyssus*.

Ptilonyssus, sensu strictu, always has a small pygidial plate and the chelicerae are always strongly and abruptly attenuated.

Both *Paraneonyssus* and *Ptilonyssus* parasitize only Passeriform birds.

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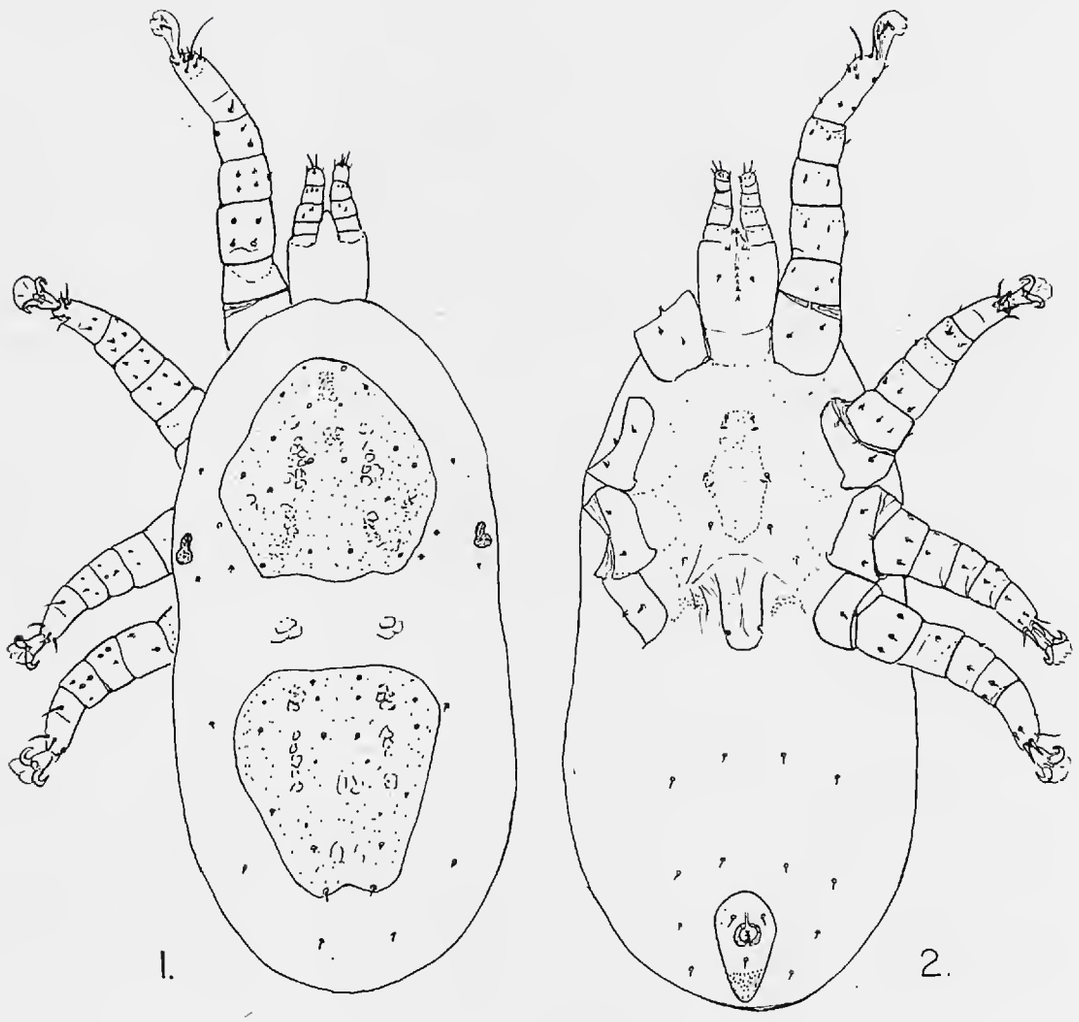


EXPLANATION OF PLATE I

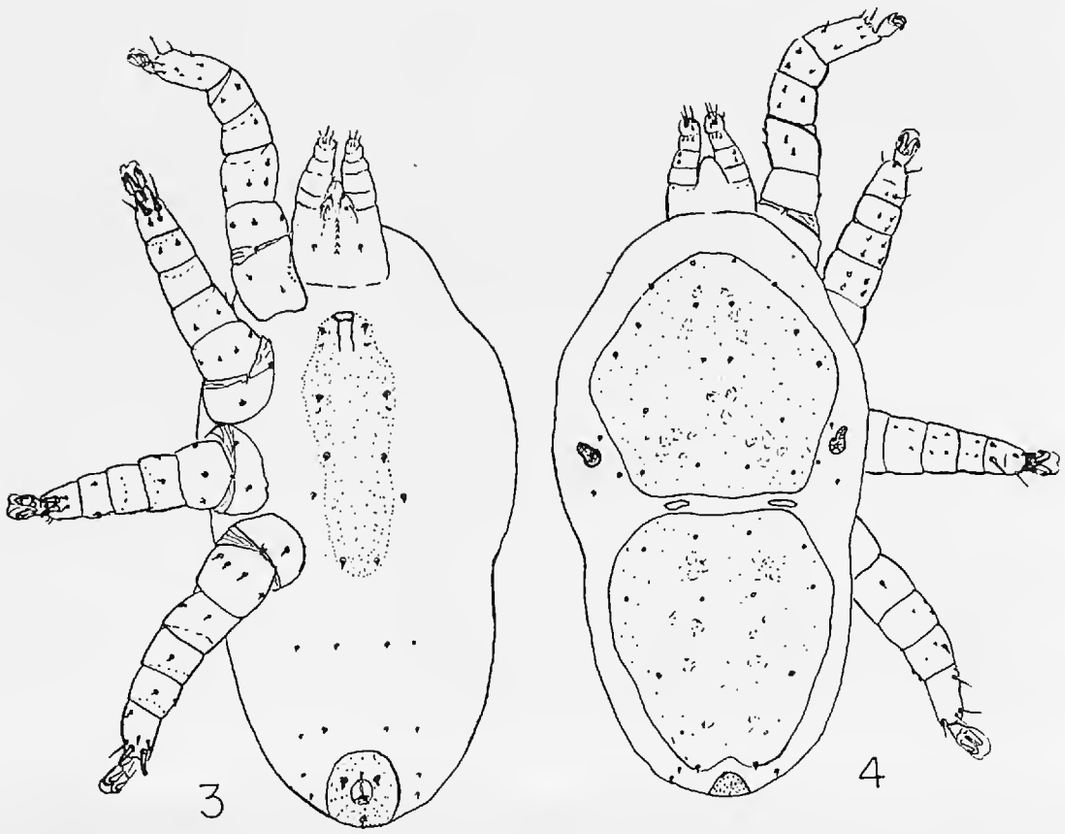
Paraneonyssus icteridius, female. Fig. 1, dorsal view; Fig. 2, ventral view.

Paraneonyssus icteridius Standtmann and Furman, new species

A small, delicate mite characterized primarily by the stout apical spurs on tarsi II, III, and IV.

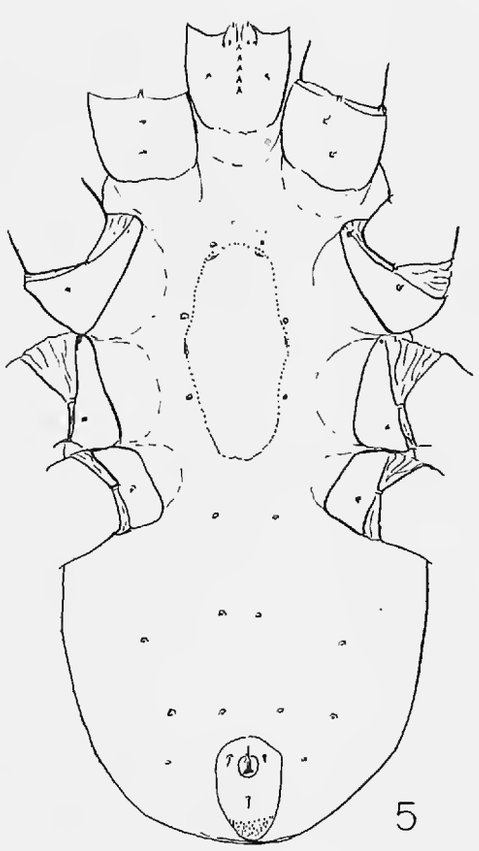
Female: Idiosoma—610 microns long; 308 microns wide. *Dorsum* (Fig. 1)—Podosomal plate rounded pentagonal with posterior margin almost straight; 188 microns long by 194 microns wide; minutely punctate with approximately 18 to 20 circular pores most of which bear minute setae; surface bearing a cellular pattern as figured. Opisthosomal plate large, measuring 194 microns long by 183 microns wide; widest anteriorly and tapering posteriorly; a pair of short spinules on posterior margin; the posterior margin varies from straight to deeply indented; surface bearing eight pairs of pores with minute setae and markings as on podosomal plate. A pair of small platelets located between the two dorsal plates. Peritreme short, approximately as long as diameter of stigma; located over coxa III. Unarmed cuticula bearing three pairs of short setae near postero-lateral borders of podosomal plate, one posterior to the stigma, two pairs lateral to opisthosomal plate and one pair posterior to it; cuticula finely striated. *Venter* (Fig. 2)—Setae of venter all short, 9 microns or less, and delicate.

Sternal plate with indistinct margins as figured, bearing the first pair of sternal setae and two pairs of pores; second and third pairs of sternal setae located off the plate, and occasionally the first pair of setae may be off the plate also. Pair of metasternal setae present, but no metasternal pores. Genitoventral plate small, with rounded posterior margin extending to level of posterior edge of coxa IV, bearing one pair of setae. Anal plate broadly rounded anteriorly, acuminate posteriorly; adanal pair of setae located anterior to anal opening; post-anal seta present and of same size as adanal setae. Unarmed region of opisthosome bearing two transverse rows of four setae each and two posterior transverse rows of two setae each. Cuticula finely striated. *Legs:* As figured, short, bearing the normal coxal setation; setae of legs in general very short and stout, a few longer setae dorsally, particularly on tarsi. Tarsi II (Fig. 11), III and IV each with two prominent ventral apical spines. All tarsi with pretarsi, caruncles and claws; paired claws of tarsi I delicate and not of typical claw shape compared to those of other legs which are prominent and flaring. *Gnathosoma* (Figs. 7 and 8)—Paired gnathosomal setae very short, delicate; deutosternal groove bearing single column of five denticles, rarely six or seven; two pairs of lateral and one pair of distal hypostomal setae present though much reduced. Epipharynx indistinct. Tectum a simple membranous flap, reaching as far as the middle of palp femur. Forked seta of palpus present (Fig. 10). Chelicerae as figured, narrowly elongate, 74 microns long, distal to basal piece; movable digit three to four microns long; fixed digit slightly smaller (Fig. 8).



EXPLANATION OF PLATE II

Paraneonyssus icteridius, male. Fig. 3, ventral view; Fig. 4. dorsal view.



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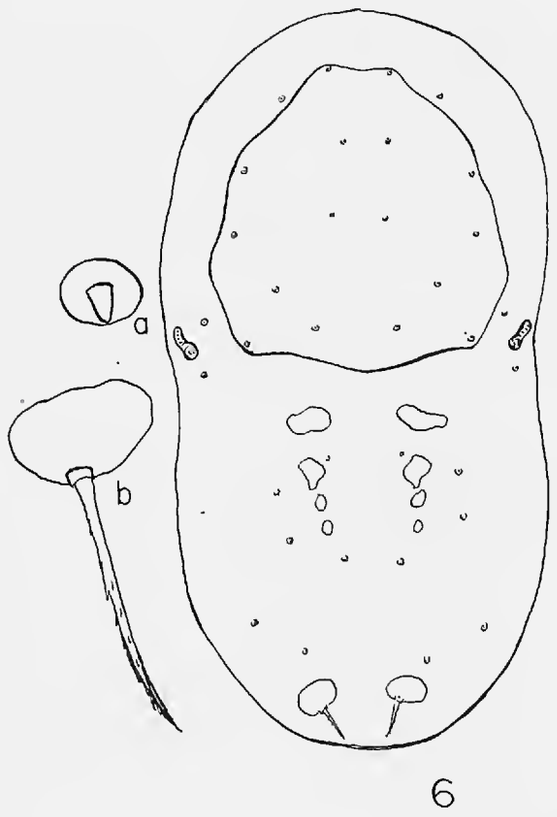

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EXPLANATION OF PLATE III

Paraneonyssus icteridius, nymph. Fig. 5, ventral view; Fig. 6, dorsal view; Fig. 6-a, enlarged dorsal seta; Fig. 6-b, enlarged pygidial platelet and attached seta.

Male: Idiosoma—420 microns long by 216 wide. Irregularly oval with shoulders over coxae II and lateral indentations over coxae IV. *Dorsum* (Fig. 4)—Podosomal and opisthosomal plate structure and shape similar to female; vestigial setae visible in some pores of plates, as figured. Peritreme and unarmed cuticula as in female. Posterior tip of anal plate frequently folded over margin of opisthosome to extend onto dorsal surface, but it may also be entirely ventral. *Venter* (Fig. 3)—All ventral setae minute. Holoventral plate poorly defined, elongate, extending from posterior margin of coxae I to mid-level of coxae IV, bearing male genital opening at anterior margin; three pairs of sternal setae; a pair of pores behind first and second pairs of setae; a fourth pair of setae located lateral to the plate at level of posterior fourth of coxae III. Anal plate as in female. Unarmed region of opisthosome as in female. *Legs*—As figured, similar to those of female, but claws of tarsus I of normal shape. *Gnathosoma*—Similar to female. Forked seta of palpus present. Chelicera (Fig. 9) stouter than in female, with a

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EXPLANATION OF PLATE IV

Paraneonyssus icteridius, Fig. 7, ventral view of gnathosoma of female; Fig. 8, dorsal view of gnathosoma of female showing tectum and chelicera;

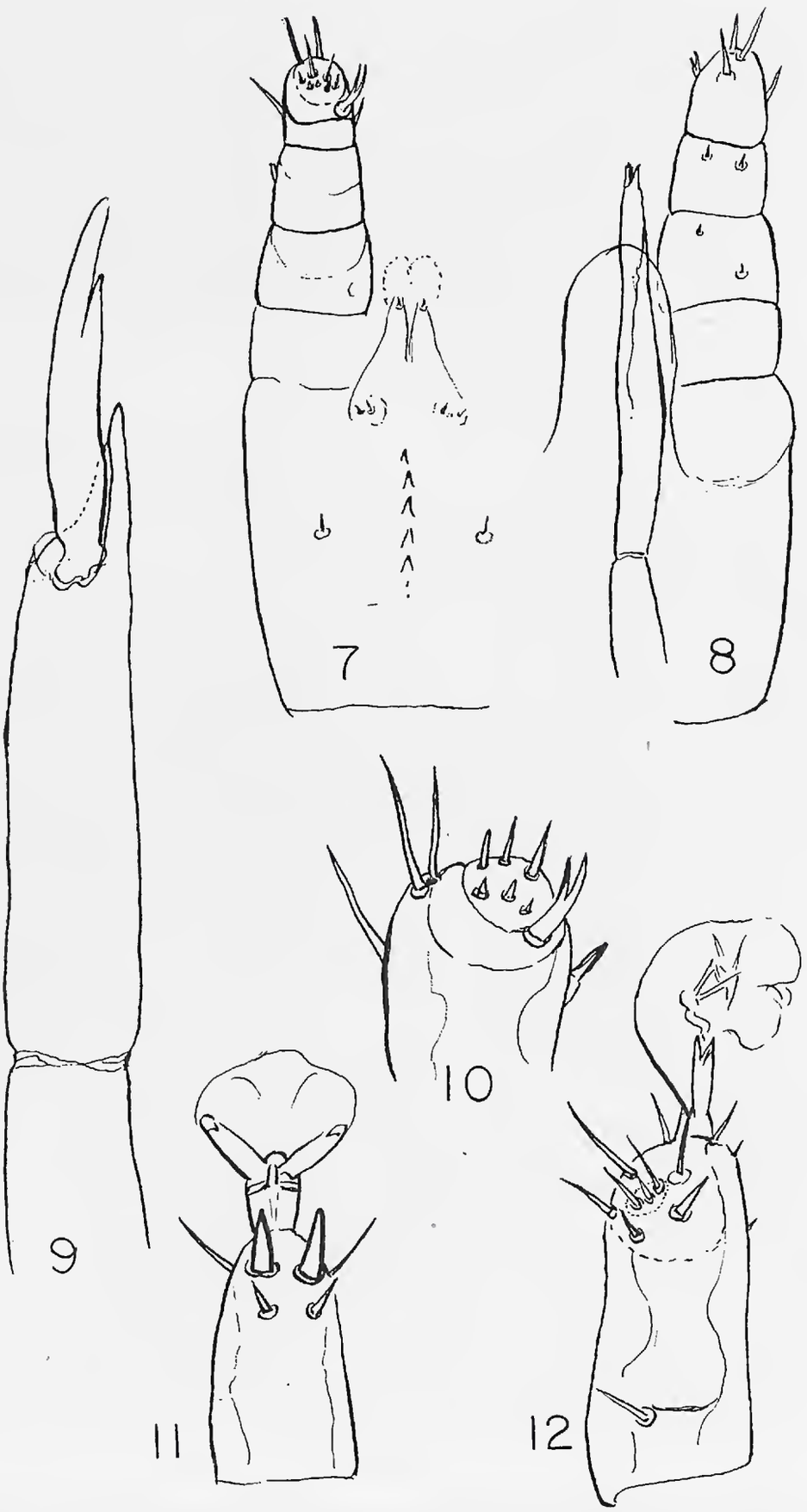

Fig. 9, chelicera of male; Fig. 10, ventral view of left pedipalp, tibia and tarsus of female; Fig. 11, ventral view of tarsus II of female; Fig. 12, dorsolateral view of tarsus I of female.

long movable digit, to which is fused the even longer spermatodactyl, as figured; fixed digit indistinct but appears as a relatively short spur.

Nympha—The nymphal stages of the Rhinonyssidae are very similar so we are not certain which stage we have although it is probably the deutonymph. Length, 430 microns. *Venter* (Fig. 5)—The ventral plate lies between coxae II and III. It is twice as long as broad, has a pair of anterior, marginal setae, a pair of marginal setae mid-laterally, and a pair of postero-lateral setae as figured. Some or all of these setae could very likely be found on the plate on occasional specimens. The metasternal setae are lacking. The anal plate as in the female. The opisthosoma bears six or seven pairs of tiny setae. *Dorsum* (Fig. 6)—The podosomal plate is present and similar to that of the female. The opisthosomal plate is lacking but in its place are two rows of indistinct small platelets. The pygidial area has two platelets each of which bears a prominent, lightly barbed seta. These setae constitute a striking dissimilarity between the nympha and the adults. The male and female both lack them. *Legs*—The tarsal spurs of legs II, III and IV are present although smaller than in the adults. The claws also are smaller. Otherwise the chaetotaxy of the legs is as in the female. *Gnathosoma*—Similar to the female.

Larva—Three of the more than 50 females studied contained hexapod larvae. These were not disssected out. They showed no unusual features.

Holotype female collected in nasal turbinates of the cowbird, *Molothrus ater californicus* Dickey and Van Rossem, at BAKERSFIELD, KERN COUNTY, CALIFORNIA; allotype male same data. Both are deposited in the U.S. National Museum (Type No. 2228), along with several paratypes. Selected as paratypes are 15 females, 5 males and 7 nymphs from the same host specimens and locality as the holotype and allotype, all collected by G. Hutson, ornithologist of the encephalitis research unit of the Hooper Foundation for Medical Research, under the supervision of W. C. Reeves. Other specimens included as paratypes are 35 females, 3 males, 2 nymphs and 1 larva collected from *Molothrus ater* in Texas, as follows: Caldwell County, June 9, 1950 (5 females); Clay County, April 13, 1952, R. W. Mitchell, collector (19 females, 2 males, 2 nymphs); Leon County, March 1, 1950, E. O. Hunt, collector (1 female, 1 larva); Lubbock County, November 4, 1950 (4 females) and November 18, 1952 (6 females, 1 male). These 41 mites were taken from 5 of 7 birds examined.

Other birds found infected were one eastern meadow lark, *Sturnella magna* (Leon County, Texas, E. O. Hunt, collector); one yellow-headed blackbird, *Xanthocephalus xanthocephalus* (Kern County, California); 11 common red-wings, *Agelaius phoeniceus* (two from Kern County, California, nine from Lub-

bock County, Texas); four tri-colored red-wings, *Agelaius tricolor*, (Kern County, California); one Brewer's blackbird, *Euphagus cyanocephalus*, (Lubbock County, Texas); one bronze grackle, *Quiscalus quiscula*, (Pampa, Texas); one western tanager, *Piranga ludoviciana* (Kern County, California).

The specific name was chosen because of the common occurrence of the mite in birds of the family Icteridae. The only non-icterid host is the western tanager, but it is very closely related to the Icteridae.

It does not seem strange that cowbirds should have a species of nasal mites similar to those of other Icteridae, since they are frequently raised by icterid foster parents. It is interesting to note, however, that commonly cowbirds do not seem to support nasal mites of species found in non-icterid foster parents. The implication here is that host specificity of these nasal mites is operative even in the face of ample opportunities for cross transmission of parasites.

It should be noted that the mites from the meadow lark *(Sturnella)* averaged 720 microns long, considerably larger than those from the other birds. Also some mites from the redwing blackbird had six deutosternal teeth and one from the bronze grackle had seven deutosternal teeth.

The new species here described may be distinguished from the other three species of this genus by its strong claw-like setae on tarsi II, III, and IV. *Paraneonyssus hirsti* (Castro and Pereira) lacks these entirely. *Paraneonyssus enriettii* (Castro and Pereira) is said to have *one* apical claw-like seta on tarsi II–IV and also has a smaller opisthosomal plate. *Paraneonyssus travassosfilhoi* (Castro and Pereira) has four prominent setae on the podosomal plate and four on the opisthosomal plate.

REFERENCES

BERLESE, A. and TROUESSART, E. L.
1889. Diagnosis d'acariens nouveaux ou peu connus. Bull. Biblioth. Scient. Ouest. 2 an. 2 pt. (9):126–130. (Orig. not seen.)

CASTRO, M. P. DE
1948. "Restruturacao Generica Da Familia 'Rhinonyssidae Vitzthum, 1935' (Acari Mesostigmata: Gamasides) E Descricao de Algumas Especies Novas." *Arquivos do Instituto Biologico 18*(13):253–284. Sao Paulo, Brazil.

CASTRO, M. P. DE and PEREIRA, C.
1949. "Revisao de Subfamilia 'Ptilonyssinae Castro, 1948' (Acari Mesostigmata: Rhinonyssidae Vitzthum) com a Descricao de Algumas Especies Novas." *Arquivos do Instituto Biologico. 19*(15):217–235. Sao Paulo, Brazil.